

WHAT IS CLAIMED IS:

[c1] A flow sensor for measuring the flow rate of a fluid, comprising:

a thin-film bridge unit supported in the air over the surface of a substrate;

a heater and a temperature measuring unit arranged on the bridge unit; and

a memory device for storing the relation between the temperature measured by the temperature measuring unit and the flow rate of a fluid to be measured in the initial state;

wherein the output of the temperature measuring unit is corrected by use of the ratio of the value of the temperature measured by the temperature measuring unit with the flow rate of zero in the initial state to the temperature measured by the temperature measuring unit with the flow rate of zero during the operation, and the flow rate of the fluid is determined based on the correction value of the output of the temperature measuring unit and the relation stored in the memory device.

[c2] The flow sensor according to claim 1, wherein the temperature measuring unit includes a first temperature measuring unit and a second

temperature unit, the two temperature measuring units being arranged on the two sides of the heater, respectively, and the correction is carried out based on the temperature measured by at least one of the temperature measuring units.

[c3] The flow sensor according to claim 1, wherein it is determined that the flow rate of the fluid is zero in the case where a temperature lower than the value of the measured temperature with the flow rate of zero in the initial state is measured by the temperature measuring unit, and the prevailing temperature measured by the temperature measuring unit is regarded as the measured temperature with the flow rate of zero during the operation.

[c4] The flow sensor according to claim 1, wherein it is determined that the flow rate of the fluid is zero in the case where a temperature lower than the value of the measured temperature with the flow rate of zero during the operation is measured by the temperature measuring unit, and the prevailing temperature measured by the temperature measuring unit is updated as the measured temperature with the flow rate of zero during the operation.

[c5] The flow sensor according to claim 1,
wherein it is determined that the flow rate of the fluid is zero in the case where the temperature of the heat generated by the heater is substantially equal to the temperature of the heat generated by the heater with the flow rate of zero, and the prevailing temperature measured by the temperature measuring unit is regarded as a measured temperature with the flow rate of zero during the operation.

[c6] The flow sensor according to claim 2,
wherein it is determined that the flow rate is zero in the case where a temperature lower than the measured temperature with the flow rate of zero in the initial state is measured by each of the first and second temperature measuring units, and the prevailing temperature measured by each of the temperature measuring units is regarded as a measured temperature with the flow rate of zero during the operation.

[c7] The flow sensor according to claim 2,
wherein it is determined that the flow rate of the fluid is zero in the case where the temperature measured by the first temperature measuring unit and

the temperature measured by the second temperature measuring unit become equal to each other, and the prevailing temperature measured by each of the temperature measuring units is regarded as a measured temperature with the flow rate of zero during the operation.

[c8] A method of measuring the flow rate of a fluid using a heater for heat generation, a temperature measuring unit for measuring the ambient temperature changing with the flow rate of the fluid, and memory device for storing the relation between the temperature measured by the temperature measuring unit and the flow rate of the fluid to be measured in the initial state,

wherein the ratio of the value of the temperature measured by the temperature measuring unit with the flow rate of zero in the initial state to the temperature measured by the temperature measuring unit with the flow rate of zero during the operation is corrected by multiplying the ratio by the output of the temperature measuring unit, and the flow rate of the fluid is determined based on the correction value of the output of the temperature measuring unit and the relation stored in the memory device.